In The Specification

Please replace the following paragraphs 0017, 0025, 0026, 0027, 0028, 0030, 0033 and 0034 with the replacement paragaphs as indicated below:

--[0017] As a result, applications using narrow gamut technology can print color images on wider gamut printers producing output consistent with applications printing with wider gamut technologies. In one implementation of the present invention, existing sRGB narrow gamut [[are]] is combined with a wide gamut colormap (e.g., YCC) to extrapolate a consistent gamut mapping in the printer gamut. By combining aspects of the narrow and wide gamuts together, the use of a popular narrow gamut workflow (e.g., sRGB) is preserved without sacrificing image consistency and quality.--

--[0025] FIG. 3C is an illustration of narrow gamut interpolation points p1 and p2 wide gamut interpolation points p1' and p2' along with the resulting surface. In the implementation illustrated, points in an image falling between the chroma of narrow gamut interpolation points p1, p2 and ~~other points on the surface are generally increased until they are on the surface of printer gamut 306. The p1', p2' and other points on the resulting surface are considered the~~ wide gamut interpolation points p1', p2' are mapped ~~and are also used to~~ to a point between using one or more

interpolation methods. This approach more finely adjusts the color of the points being printed in an image without merely clipping the ~~interpolate~~ values to the surface of the printer gamut 306. ~~in color space outside the narrow gamut.~~--

--[0026] FIG. 3D is a composite illustration of the narrow, wide and printer gamut along with representative points corresponding to the operations of the present invention. In example 308, both the wide gamut at point w2 and the narrow gamut at point n2 are within the printer gamut 306 and therefore map to same printer gamut point p2. ~~The interpolation points resulting from these operations are used to perform gamut mapping when the color values are not in the narrow gamut.~~ Color values that fall in the narrow gamut range (i.e., the sRGB color space) are presented by using them directly and without modification. Essentially, the narrow gamut interpolation point p2 is used directly to perform gamut mapping in this example. Example 310 illustrates when a point w1 from wide gamut 302 maps to a wide gamut interpolation point p1' on the surface or slightly within the printer gamut 306 and another point n1 from narrow gamut 304 maps to a narrow gamut interpolation point p1 at some differential from wide gamut interpolation point p1' within the printer gamut 306. Instead of clipping, aspects of the present invention use an interpolation approach to resolve this difference in mapping.--

--[0027] To further clarify this relationship, FIG. 3E provides a zoomed in view (not-to-scale) of example 310 illustrating the interpolation points used to interpolate values lying somewhere between the narrow gamut and wide gamut. As previously mentioned, p1 ~~p2 is one narrow gamut interpolation point and p2'~~ is one narrow gamut interpolation point and p1' is one wide gamut interpolation point used in accordance with gamut mapping of the present invention. For example, narrow gamut interpretation point p1 corresponds to i1 in the chroma dimension and wide interpolation point p1' corresponds to i3 in the chroma dimension. Colors within the narrow gamut are preserved and used while colors outside the narrow gamut are obtained by interpolating between the narrow and wide gamut interpolation points. ~~For~~ In one example, ~~in~~ the ~~FIG. 3E a~~ color falling at position i2 in FIG. 3E could ~~would~~ be analyzed and mapped to the printer gamut 306 by linear interpolation of the respective interpolation points i1 and i3. Specifically, i2 would be calculated as approximately ½ (p1+p1' ~~p2 + p2'~~); other points outside the narrow gamut would be calculated similarly based on the position of using points in set of interpolation points 318 (e.g., i1, i2 and i3). It is contemplated that many different interpolation methods could be invoked depending on the type of results desired.--

--[0028] FIG. 4 is a flowchart diagram of the operations for gamut mapping using narrow interpolation points and wide interpolation points in accordance with one implementation of

the present invention (400). Initially, implementations of the present invention receive a narrow gamut (e.g., sRGB), a printer gamut, a wide gamut for processing and a predetermined mapping between the narrow and printer gamuts (402). The areas in a CIELAB or LCH space are compared to determine the one or more areas that the wide gamut, narrow gamut and printer gamut overlap (404). When the narrow gamut overlaps the wide gamut (406), the narrow gamut data values are used for lookup table entries in lieu of wide gamut or print gamut values (408). This causes the color values in sRGB space to be used consistently whether printing using a narrow gamut based application or a wide gamut based application. For example, a color image entirely within the narrow gamut or sRGB space would only use the sRGB space and would appear the same whether printed from a wide gamut application or a narrow gamut application.--

--[0030] Once they are selected, the narrow and wide interpolation points are used to linearly interpolate and identify proper corresponding areas in the printer gamut (414). In one implementation, the interpolation maintains the hue of the clipped color while increasing the chroma to the printer surface. Lightness of each resulting color is modified to a fractional difference in lightness between the lightness of the clipped value and the original unclipped value. Together, the color values in the narrow gamut (e.g., sRGB) are used along with color values resulting from

interpolation when doing the gamut mapping (416). As previously described, this preserves the narrow gamut information while using the wide gamut to print in the printer gamut color space.--

--[0033] The location of the clipped narrow gamut values in the printer gamut are then determined by way of narrow gamut to printer gamut mapping information (504). Predetermined gamut mapping information for this transformation locates and maps the narrow gamut surface of points to corresponding points in the printer gamut. The narrow gamut interpolation points are set to the resulting printer gamut values from this narrow gamut to printer gamut mapping (506). This portion of the results is used back in FIG. 4 at step 412 ~~410~~ where the narrow gamut interpolation points are identified.–

--[0034] Further processing is needed to obtain the wide gamut interpolation points. In one implementation of the present invention, processing continues and the chroma of the narrow gamut interpolation points are increased until the points are on the printer gamut surface (508). The wide interpolation points are set to these points along the printer surfaced based upon increasing the chroma values of the narrow interpolation points (510). These resulting values are also used in FIG. 4 at step 410 ~~412~~ to identify the wide gamut interpolation points.--

In the Figures:

Please accept our request to replace FIG. 3C, FIG. 3D, FIG. 3E, FIG. 4 and FIG. 5 with the attached replacement sheets indicated as "Replacement Sheet" FIG. 3C, FIG. 3D, FIG. 3E, FIG. 4 and FIG. 5 respectively.